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ABSTRACT

One of seven career education programs chosen for nationwide dissemination by the Department of Health, Education, and Welfare's Joint Dissemination Review Panel (JDRP), the Career Development Program is being conducted for grades K-6 in Akron, Ohio. For the years 1971-75, it received funding from federal, state, and local sources. Based on the Ohio Career Development Model, it seeks to familiarize students with seven areas: the self, economics, the world of work, decision-making, the individual and the environment, education and training, and employability and work adjustment. In grades K-6, curriculum activities were selected for career motivation, in 7-8 for career orientation, and in 9-10 for career exploration. To evaluate the program's effectiveness, cognitive and affective tests were administered to 250 non-program students at four different grade levels. Besides comparisons between participating and non-participating students, subgroup comparisons were made according to sex, racial background, and academic orientation. Because of the large number of students tested and the consistent results achieved, the program is considered to be educationally meaningful, effective in achieving its goals, and an important educational effort. (The review process that this and the other six projects underwent prior to JDRP submission and approval is described in CE 020 214-215.) (BLG)

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CAREER DEVELOPMENT PROGRAM

Akron Public Schools
Akron, Ohio

A Submission to the
Joint Dissemination Review Panel

Susan L. McBain
American Institutes for Research

30 April 1978

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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CE 020 220

PROGRAM AREA: Career Education

ACTIVITY TITLE, LOCATION: Career Development Program, Akron Public Schools, Akron, Ohio

DEVELOPED BY: Akron Public Schools

SOURCE AND LEVEL OF FUNDING:

1971-72:	80,810 (VEA Part C State)	1972-73:	147,695 (VEA Part C Federal and State)
	38,000 (VEA Part D State)		
	56,090 (State and Local)		87,395 (State and Local)
	$ 174,900 Total		$ 235,090 Total
1973-74:	141,054 (VEA Part C State)	1974-75:	82,565 (VEA Part C Federal)
	101,827 (State and Local)		189,700 (State and Local)
	$ 242,881 Total		$ 272,265 Total
1975-76:	16,115 (VEA Part C Federal)		
	530 (VEA Part D State)		
	247,735 (State and Local)		
	$ 264,380 Total		

YEARS OF ACTIVITY DEVELOPMENT: 1971-75

BRIEF DESCRIPTION OF ACTIVITY

Goals and Desired Outcomes for Students

Goals. The Career Development Program that has been implemented in the Akron Public Schools is based on the Ohio Career Development Model. This model describes student goals for three grade ranges: the K-6, 7-8, and 9-10 levels.*

- K-6 level. Efforts at this level are aimed at helping students to develop a positive self-concept, awareness and appreciation of many different occupations, positive attitudes toward work, and appreciation of the dignity of all work.
- 7-8 level. The program at this level is intended to develop students' skills in evaluating their own interests and abilities and in recognizing the relevance of occupational characteristics to those interests and abilities.
- 9-10 level. At this level, the program focuses on helping the students study selected career areas in depth according to their interests, and also on helping them to integrate school subject choices into their overall explorations.

Desired outcomes. At each level, specific desired outcomes for students have been formulated within seven developmental areas. These areas are: the self; economics; the world of work; decision-making; the individual and the environment; education and training; and employability and work adjustment. The list of outcomes is too long to include here, but one example from each developmental area is given below to indicate the broad scope of this program's purposes:

- Self (7-8 level): The student will clarify his/her own interests, aptitudes, and values.
- Economics (K-6 level): The student will begin to differentiate between consumers and producers.
- World of work (9-10 level): The student will know procedures to gain entry into tentative career choices.
- Decision making (9-10 level): The student will list both short-term and long-range goals.

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* Due to funding limitations, the Ohio Career Development Model has not been developed beyond grade 10.

- Individual and environment (K-6 level): The student will identify major roles workers have in influencing the environment.
- Education and training (K-6 level): The student will begin to recognize that educational experiences are part of life planning.
- Employability and work adjustment (K-6 level): The student will perform tasks with or without supervision and be able to analyze quality and performance.

Claims of Effectiveness

As a result of participation in this career education program, a randomly selected sample of third, sixth, eighth, and tenth grade students in the district performed better on locally developed tests of career education outcomes than did a comparable sample of district students who did not participate in the program.

The tests measured both cognitive and affective outcomes within each of the seven developmental areas listed above. In the cognitive domain, the majority of comparisons (75%) favored the program students at the .05 level of significance. In the affective domain, tenth grade results favored the program students in all comparisons at the .05 level of significance, and results at other grade levels also favored program students in most cases. The evidence presented to support this claim is from the school year 1975-76.

Description of Program

The Career Development Program consists of a pattern of career-related activities integrated into all aspects of Akron's K-10 curriculum, increasing in detail and sophistication as students reach higher grade levels. The critical assumptions of this program are that:

- Career education activities must begin early because the fundamentals of children's career development begin early.
- Career education must be "infused" into the whole curriculum instead of being "added on," changing the curriculum's focus more than its content, because one of the purposes of career education is to demonstrate the relevance of all school subjects to the world of work.
- Finally, career education must involve parents, community group members, and workers of all types as collaborators with educators, because of the sizable impact these persons may have upon students and the unique information they can contribute to student career development.

K-6 curriculum. In the K-6 curriculum, the concept guiding the choice of activities is known as career motivation, or the encouragement of skills and attitudes fundamental to career satisfaction in later life. Activities are aimed at increasing self-awareness, self-esteem, self-responsibility, and knowledge of the wide range of jobs that people may hold.

The curriculum depends heavily on classroom experiences and learning materials that integrate these concepts into the already existing curriculum. Teachers provide about 135 hours of exposure to these activities on the kindergarten level and 270 hours of exposure in each grade from 1-6. The activities use a career focus in their approach to the elementary curriculum while continuing to cover basic elementary level skills.

Example. In one elementary school, third graders used yarn, glass eyes, pipe cleaners, and glue to make "warm fuzzies" on a classroom assembly line. Inspiration for the project was a story about people who exchanged warm fuzzies as a way of saying, "I like you." Before starting production, the class studied business terms and principles, made field trips to observe assembly-line production and division of labor, heard a talk

by an attorney about starting and operating a corporation, and heard a talk by a banker about kinds of bank accounts. A corporation was formed, shares of stock were sold at ten cents, and a Board of Directors was elected.

After decisions were made on the kinds of "workers" needed, students applied and were interviewed for the kind of job they preferred. Stockholders met and decisions were made concerning "capital goods" needed (scissors, wire cutters, storage containers, art supplies) and purchase of "raw materials" (yarn, pipe cleaners, glue, glass eyes). Safety rules were written for five production lines, each with a supervisor and quality control person. Prices for different sizes of warm fuzzies were determined after the first "production runs." Advertising and promotions were devised and carried out in school and through a local church bazaar. Money received from sales returned the original investment plus a profit, which was donated to a local hospital.

This example illustrates an activity which taught the students a great deal about the business world, but at the same time, it stressed communication skills, mathematics skills, decision-making skills, problem analyzing and solving skills, and skills in working within a group.

7-8 curriculum. At grade levels 7-8, the emphasis of activities is on career orientation, that is, increasing student familiarity with specific aspects of various careers. Students at this level are exposed to career consultants, work laboratories, and field experiences allowing them to observe occupations ranging from semi-skilled to professional. Career orientation activities stress the economic and social values of work, self-appraisal in relation to various careers, and further development of decision-making skills. Emphasis at this level is on career knowledge, but on a broad scale in which familiarity with all career clusters* and all types of jobs is stressed. At this level (and the 9-10 level as well), the 15 career clusters are generally studied in conjunction with the following subject areas:

- Social studies: In these classes, the Transportation and Public Service clusters are covered.
- Science: In these classes, the Agri-Business and Natural Resources, Marine Science, Environmental Control, and Health clusters are covered.
- Language arts: In these classes, the Communications and Media and Business and Office clusters are covered.
- Mathematics: In these classes, the Marketing and Distribution cluster is covered; in addition, the relevance of mathematics to all clusters is emphasized.
- Industrial arts: In these classes, the Manufacturing and Construction clusters are covered.
- Home economics: In these classes, the Consumer and Homemaking, Hospitality and Recreation, and Personal Services clusters are covered.
- Music and art: In these classes, the Fine Arts and Humanities cluster is covered.

9-10 curriculum. In grades 9-10, actual career exploration is the focus. Students' areas of career interest, pinpointed through interest inventories and consultations with school staff members, are used to help them select relevant academic subjects and also to help teachers tailor career experiences to their own students. Films, curriculum units, and resource speakers are supplemented by on-site work exposure. Paid and unpaid work experience is encouraged; for instance, home economics students volunteer their services at local day care and nursing care centers. Field trips to local firms are made, occupying from one hour to a full day or more. Specific company policies on hiring, salary, working conditions, and necessary education are explored. Guidance activities, such as decision-making and values clarification exercises, are brought into the classroom.

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* The Akron program utilizes the U.S. Office of Education's classification of occupations into 15 clusters.

Resources at all levels. At all levels, detailed curriculum guides have been developed which include suggested activities and teaching strategies. The aim of these activities is to help all students, whether in an academic or non-academic program, to focus on how different careers might fit with their interests, abilities, and values, so that tentative career choices can be made before students leave school.

Program staffing. This program was first implemented in 1971 and was under continuous development until 1975. By 1975-76, the career development program was fully implemented in 11 elementary schools, 3 junior high schools, and 2 senior high schools, serving a total of 13,600 students. All career education activities in the district were coordinated by a district level career education staff consisting of a program director, 7.5 full time equivalent (FTE) career education coordinators, a secretary, and three paraprofessional staff members. The director was responsible for coordinating career education activities with other departments (elementary education, secondary education, guidance, vocational education, and special education) in curriculum development and implementation and for liaison with local businesses, industry, labor, and community service groups, in addition to overall administrative tasks. The coordinators worked at the school level, with 5.5 FTE staff members working in elementary schools and two at the junior and senior high levels.

The major functions of the coordinators were: (1) acquainting school staffs with the vast array of available career education resources, media, and materials; (2) working with curriculum specialists, teachers, and counselors to help them select, adapt, or develop appropriate career education activities for infusion into the existing curriculum; (3) helping to plan and schedule resource speakers, field observations, and other activities involving community members; (4) developing and implementing in-service meetings at both the building and program-wide levels; (5) working with the building counselor to develop and implement a career guidance program or actually implementing such a program if there was no building counselor; and (6) conducting assessments of the extent of career education activities at each school.

Context

Akron, Ohio, is a city of approximately 275,000 persons and is predominantly urban in character. Manufacturing establishments are primary employers in the area, with professional services running second and trade occupations third. The district consists of 47 elementary schools, 10 junior high schools, and 9 senior high schools with a total enrollment of close to 50,000 students. A total staff of approximately 2,500 serves classes averaging 28.5 students per class.

A significant feature of the program's context is the high amount of community involvement in career education activities. The Akron Regional Development Board (formerly the Chamber of Commerce) has for a number of years worked closely with the Board of Education to fulfill the scholastic needs of the school district; it analyzes Board of Education levy requests and promotes educational fund-raising efforts. Its Education Work Committee, composed of volunteers representing business, labor, industry, the Akron Public Schools, and the Akron Board of Education, advises teachers and administrators on how to deal with career related curriculum problems and represents the basic decision-making body for expanding and improving career collaboration efforts. Their work enables over 1,000 resource persons to be involved in classrooms on an on-going basis. Organizations including the National Alliance of Businessmen, the American Society for Personnel Administrators, the Building and Construction Trades Council of the Akron area, the Urban League, General Motors, the University of Akron and Kent State University, service clubs, and youth clubs offer students class and field experiences related to a great variety of careers.

Staff development also plays a large part in this program. Since the program's inception, Akron educators have taken a large number of courses on career education topics, including workshops, district "mini-courses" tailored to expressed school

staff needs, and community resource workshops. The latter were two-week summer in-service programs providing both in-depth on-site exploration for educators at local firms and also structured work on relating such experiences to later classroom activities. Many of these courses have offered college credit.

Intended Users and Beneficiaries

The intended users of the program are K-10 students of all sexes, races, and levels of academic ability. Program staff members believe that students who are exposed to career education activities throughout their school careers will benefit by being better equipped as adults to make effective choices and achieve satisfying lives. Program staff members also believe that more satisfied workers mean a more stable and productive society, and thus that society as a whole is also a long-range beneficiary of the program.

More immediate benefits are apparent as well. Program staff members feel that the high level of school/community interaction increases the levels of understanding and respect between school staffs and community members. This is a desirable result in itself, but in addition it contributes to making Akron's curricula more vital, more relevant, and more interesting to students than traditional curricula.

Student Characteristics

Program activities were used with K-10 students. To evaluate the effects of these activities, samples of third, sixth, eighth, and tenth grade students were drawn. These students represented a cross-section of all Akron area students. At all grade levels tested, there were approximately equal numbers of boys and girls. Approximately 60% were black or other minority, the rest being white. At the tenth grade level, approximately one-third were pursuing an academic program; the rest were enrolled in a non-academic program (vocational, general, or other.) Test results were analyzed to compare overall student performance at each grade level, and also the performance of program and non-program students within the following subgroups: boys, girls, whites, non-whites, academic students, and non-academic students. Results are discussed later.

Salient Features

First, the program activities are developmental across the K-10 grade levels. Just as career development is a long process which builds continually on earlier development, so does this program offer a series of activities building on previous career related learning. It does not attempt to achieve quick results that are easy to measure but may have no lasting value; rather, it looks to incremental results which add up to significant growth at the point when the student is ready to leave school and assume a worker's role in society.

Second, the program utilizes the services of full-time career coordinators, as mentioned above; these experts are able to keep abreast of the wide variety of career education materials commercially available, and assist teachers in tailoring student activities as needed. Coordinators also assess teacher in-service needs and develop specific in-service staff development programs to meet those needs.

Third, the program utilizes a great deal of "real life" contact with the world of work at all levels, with increasing exposure at higher grade levels. Program staff members feel that learning about work from books can never substitute for direct experience with workers and work settings.

Costs

Since the Akron effort is so large and its career education activities have been constantly expanding, it would be unrealistic to make a distinction between "implementation" and "maintenance" costs. Also, facilities costs may vary widely depending on

what district, school, and community resources are already available, so costs for facilities are not included. In 1975-76, direct project costs were as follows:

	K-6	7-8	9-10
Personnel	$116,781	$41,147	$53,821
Personnel Training	2,649	1,921	210
Equipment	400	325	0
Consumable Supplies	8,105	4,920	2,873
Other (travel, postage, telephone, pupil transportation, miscellaneous)	23,454	9,458	3,096
	$151,389	$57,771	$60,000

In 1975-76, approximate costs per student were $20 at the K-6 level, $25 at the 7-8 level, and $30 at the 9-10 level.

EVIDENCE OF EFFECTIVENESS

Interpretability of Measures

The tests used to measure student growth were developed in 1974-75 under contract to Policy Studies in Education (PSE), which has been involved in evaluating the Ohio Career Development Model since 1971. After observation of in-class education practices in Akron and another Ohio city, PSE staff members developed and pilot-tested pools of cognitive and affective items. Those items judged to best address the program's objectives were then field-tested in seven Ohio cities. Testing at five additional sites was conducted to show that items were not so specific to particular sites as to be trivial. PSE staff members selected the items that discriminated most effectively between program and non-program students to construct cognitive and affective tests of career education concepts in grades 3, 6, 8, and 10. Each test contained 40 cognitive items and 20 affective items.

Content validity of the tests was rated by Ohio state and local program officials. They were asked to rate each item from the final tests as "important," "neutral," or "unimportant." They rated an average of 87% of the test items as "important" while only 4% were rated "unimportant."

Reliability coefficients for the cognitive and affective sections were computed using the Kuder-Richardson 20 formulas. The average cognitive section reliability coefficient across grade levels was .86; for the affective section, the average reliability coefficient was .60.

The tests administered in the year being examined, 1975-76, were slightly refined from the versions created in 1974-75, based on the following considerations:

- To increase the reliability of the affective portions of the tests, they were lengthened from 20 to 40 items. Items were selected from the pool of items generated and analyzed in the previous year (683 total cognitive items, 383 affective items), based on their power to discriminate between program and non-program students and on appropriateness of reading level.
- Items which did not discriminate between program and non-program students when administered during the 1974-75 school year were eliminated.
- Any items that had been rated as "neutral" or "unimportant" by Ohio state and local program officials in 1974-75 were removed from the tests and replaced by items in the same developmental areas. All seven developmental areas were represented at each grade level. It is interesting to note that this distribution across areas was not intentional, since the original item selection was made strictly on the basis of item discriminatory power. The fact that

items selected proved to represent all seven areas is evidence that school staff members in Akron were implementing a wide variety of career education activities, as program staff had hoped they would.

Sample items from the revised tests at each grade level follow:

- Grade 3 (cognitive item): Which is a job in medicine? A. Orderly B. Patient C. Officer D. Teacher
- Grade 6 (affective item): I'm too young to think about what I want to do when I grow up. A. Agree B. Disagree
- Grade 8 (cognitive item): What occupation would require the greatest amount of formal education? A. Psychologist B. Practical nurse C. X-ray technician D. Dietitian
- Grade 10 (affective item): Being responsible is as important as being smart. A. Agree B. Disagree

Cognitive items had objectively correct answers, while the "correct" answers for affective items were determined by Ohio State Department of Education staff based on the Ohio Career Development Model's goals and desired outcomes.

Evidence of Impact

Approximately 250 program and 250 non-program students from within the school district were tested at each of the four involved grade levels (about 2,000 students in all). These samples were drawn as intact classes, with ten classrooms of program students being selected at each grade level (40 classrooms altogether). Using information such as mean reading scores, IQ scores, grade point averages, and socioeconomic indicators, the program director selected the most comparable possible non-program schools. From these, ten intact classrooms at each grade level were selected to serve as the control sample. Selection of classrooms was done using an alphabetical list of all teachers' names in the program schools and a similar list of all teachers' names in non-program schools. A random number table was used to select ten teachers in each group, and their classes were identified as members of the two samples.

At the third and sixth grade levels, the entire class of each of the teachers selected was tested. In grades 8 and 10 only English and social studies teachers were included on the lists, because only these classes were comprised strictly of eighth or tenth grade students. Also, since these classes were required in those two grades, students of all levels of ability had a reasonably equal chance of being included in each sample. The resulting samples were quite comparable, each containing approximately even numbers of boys/girls and whites/non-whites. Each tenth grade sample included about one-fourth academic and three-fourths non-academic students.

Credibility of evidence. Tests were administered to both program and non-program students during the week of May 3-7, 1976. None of these students had been tested in the 1974-75 test development process, since they were not then in the grades that were tested. Final copies of the test and written directions for administration were supplied to the program director by PSE. The local program coordinators, and local school counselors in a few cases, administered the tests to both program and non-program students. In grade 3, test administrators read the questions and response choices aloud to students, who then circled the letters of the correct responses. In grades 6, 8, and 10, students read the questions and responded themselves. Answer sheets were collected and sent directly to PSE, which scored them, analyzed the data, and interpreted the results.

Results in the cognitive domain. The test results in the cognitive domain were significant at all grade levels. Differences between groups were tested using t-tests calculated at each grade level. At every grade level except the sixth, a majority of the comparisons showed a difference which was significant at the .05 level. Altogether, 21 of the 28 t-tests showed significant differences in favor of the program students.

The data for each grade level are shown below, with the seven areas at each grade level ranked according to t-values.

THIRD GRADE:

Average percent of items correct:

Program students: 62% (N=262)
Non-program students: 51% (N=278)

Developmental area	t-value
Economics	3.53*
Self	2.91*
World of work	2.89*
Education and training	2.61*
Employability and work adjustment	2.28*
Individual and environment	2.25*
Decision making	0.93

SIXTH GRADE:

Average percent of items correct:

Program students: 58% (N=276)
Non-program students: 51% (N=285)

Developmental area	t-value
Self	2.54*
World of work	2.14*
Education and training	2.15*
Economics	1.19
Individual and environment	0.88
Decision making	0.79
Employability and work adjustment	0.65

EIGHTH GRADE:

Average percent of items correct:

Program students: 44% (N=266)
Non-program students: 32% (N=227)

Developmental area	t-value
Decision making	3.55*
Economics	3.54*
Self	3.35*
Education and training	3.12*
World of work	2.86*
Individual and environment	2.46*
Employability and work adjustment	2.04*

TENTH GRADE:

Average percent of items correct:

Program students: 57% (N=233)
Non-program students: 35% (N=211)

Developmental area	t-value
Education and training	8.92*
Individual and environment	8.34*
Self	7.24*
Decision making	5.06*
World of work	4.18*
Employability and work adjustment	1.44
Economics	1.15

Results in the affective domain. Though results at all grade levels gave evidence of positive program impact, largest differences occurred at the tenth grade level, where all seven developmental areas showed significant differences between treatment and control group scores. Since the affective domain is widely acknowledged to be more difficult both to influence and also to measure, the results shown below are especially notable.

THIRD GRADE:

Average percent of items correct:

Program students: 65% (N=262)
Non-program students: 61% (N=278)

Developmental area	t-value
Individual and environment	2.03*
Economics	1.91*
World of work	1.56
Decision making	0.79
Employability and work adjustment	0.69
Self	0.40
Education and training	0.21

SIXTH GRADE:

Average percent of items correct:

Program students: 66% (N=276)
Non-program students: 64% (N=285)

Developmental area	t-value
World of work	2.60*
Education and training	1.33
Economics	0.34
Individual and environment	0.24
Self	0.17
Decision making	0.13
Employability and work adjustment	-0.77

* Significant at the .05 level, one-tailed test. Positive t-values favor the program students; negative t-values favor non-program students.

EIGHTH GRADE:

Average percent of items correct:

Program students: 47% (N=266)
Non-program students: 43% (N=227)

Developmental area	t-value
Economics and training	2.00*
Economics	1.80*
World of work	1.64
Individual and environment	0.65
Decision making	0.61
Self	0.51
Employability and work adjustment	-0.34

TENTH GRADE:

Average percent of items correct:

Program students: 65% (N=233)
Non-program students: 38% (N=211)

Developmental area	t-value
Decision making	8.30*
Individual and environment	7.58*
Self	6.48*
Employability and work adjustment	5.50*
World of work	4.60*
Economics	3.54*
Education and training	3.41*

Subgroup comparisons. In addition to the above comparisons, analyses of differences were also made at each grade level between program and non-program students by important subgroups: boys, girls, whites, non-whites, academic students, and non-academic students. Comparisons at each grade level were only of the results in the two domains as wholes, not of each of the seven developmental areas within each domain. The summary results are: first, in 35 of the 36 comparisons, program subgroups outscored non-program subgroups, on the average; second, the score differences were significant at the .05 level in 17 of those 35 comparisons.

The analysis of subgroups demonstrates that the overall results shown in the data tables above also hold true in most cases for important subgroups of students.

Summary of results. These data make it clear that students within the career education program have learned considerably more than non-program students in the areas measured by the tests. In most cases, cognitive differences were larger than affective differences; but in all grades, especially the tenth, program students showed evidence of superiority in both domains. This superiority is evident whether the student is boy or girl, white or non-white, or pursuing an academic or non-academic program.

Evidence of Statistical Reliability of Effects

Two facts about the test results indicate statistical reliability of effects. First, large numbers of students were tested at each grade level, forming a reasonable cross section of all types of K-10 students. These students were taught by ten different teachers at each grade level (40 teachers in all) in the program group and an equal number of teachers in the non-program group. This large number of teachers rules out teacher effects as a likely cause of differences in performance.

Second, in the 56 comparisons made between scores in developmental areas across the four grade levels, 54 favored the program students. Thirty-three of these differences (61%) were significant at the .05 level. Such a consistent pattern of superiority is impressive.

Finally, the results for different subgroups described above show that the program is effective with students who differ in sex, ethnicity, or academic bent.

Evidence that the Effects are Educationally Meaningful

One of the program's salient features mentioned earlier was its focus on impact over the long term. The cognitive and affective results shown above for the tenth grade give impressive evidence of the cumulative and strong impact of this program. If career development is a long, incremental process, then it stands to reason that an effective career education program should show greater impact at higher grade levels. This the

Akron program obviously does. In particular, results at this level in the affective domain are notable, both for their rareness in career education program evaluations and for their importance. To be sure, knowledge gains are important preparation for the world of work; but attitude is perhaps even more important, and far harder to influence. This project has shown positive results in this domain.

Another factor contributing to the educational significance of this program is the importance of its stated goal areas to human life. Any step toward meeting such goals must be counted worthwhile, particularly when the step can be taken with nearly 14,000 students at a cost per student not exceeding $30.

The evaluator's original reports of the program's results were intended for lay audiences and did not include information on score variability, which is now not available. Therefore, no statistical estimate of magnitude of score differences can be made. But the points discussed above make it clear that this program's results are important, consistent, and reasonable in cost. In these terms, the results appear to be educationally meaningful as well as statistically significant.

Evidence that Effects are Attributable to the Intervention

The large numbers of students tested and their comparability on major factors give evidence that it is the program which makes the difference. The comparability of groups also assures that maturation differences alone are not accounting for these effects. Also, the fact that a pretest was not given eliminates practice effects as a contaminating factor between program and non-program student results.

Evidence of Generalizability to Populations for Which the Intervention is Intended

Again, the large number of students and their diversity on important factors offer evidence that the program is widely effective for K-10 students. The analyses of results by subgroup further support this conclusion.

In sum, the evaluation of the Akron career education program in 1975-76 reveals differences in student learning which are consistently higher for program students across many developmental areas and several grade levels. The consistency of results and the importance of the goal areas offer strong support that the Akron career education program is an effective and important educational effort.